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EXAMINER	
EDELMAN, BRADLEY E	
ART UNIT	**PAPER NUMBER**
2153	8

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/692,949	SWEDOR ET AL.	
	Examiner	Art Unit	
	Bradley Edelman	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 October 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to Applicant's amendment and request for reconsideration filed on March 1, 2004. Claims 1-50 are presented for examination. Because the amendment necessitates new grounds for rejection, this Office action is final.

Claim Rejections - 35 USC § 112

1. Claims 1-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In considering claims 1, 17, 33, and 48, the claims contain the phrase, "data forwarding *related* service." The term "related" is indefinite, and therefore renders the claims ambiguous.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 9-20, 25-37, 39, 41-45, and 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humpleman et al. (U.S. Patent No.

6,546,419, hereinafter "Humpleman"), in view of Raz et al. (U.S. Patent No. 6,529,515, hereinafter "Raz").

Regarding claims 1 and 17, Examiner has interpreted the term "forwarding related" as meaning simply "forwarding."

In considering claims 1 and 17, Humpleman discloses a network device and a method for causing a network device ("device B") to locally perform a service, comprising:

Means for receiving at the network device a document written in accordance with a markup language ("interface document INTERFACE.XML") and a corresponding document definition ("document type definition INTERFACE.DTD") (col. 15, lines 44-52; col. 18, lines 8-11, "the XMLRPC command messages are sent to the controlled device B over the network. Upon receiving said XMLRPC command messages...");

Means for parsing by the network device the received document in accordance with the corresponding document definition (col. 18, lines 11-13, "the controlled application 84 of device B uses the XML parser 74 of device B to parse and interpret the received XML command messages");

Means for executing the service on the network device in accordance with the parsed document (col. 18, lines 14-17, "device B then decodes the parser results... to perform requested services").

However, Humpleman does not disclose that the service is a data forwarding service or that the device is a data forwarding device or that the document describes a data forwarding service, such that the document causes data forwarding services to be

performed. That is because Humpleman does not focus on controlling data forwarding devices (i.e. routers, switches, etc.). Instead the main embodiment of Humpleman's invention describes a way of using XML documents to control other types of home-network devices. Nonetheless, Humpleman does contemplate that "devices" may include routers and other non-home-network devices (see col. 1, lines 36-38, 42-46, "the [network] devices include computers, peripheral devices, routers, storage devices...," "the term 'device' typically includes logical devices or other units having functionality and an ability to exchange data, and *can include not only all home devices but also general purpose computers*"; "method and system to provide the ability to control a plurality of diverse devices having different capabilities to communicate with each other in order to accomplish tasks or provide a service." Emphasis added.).

Furthermore, in a similar art, Raz discloses that routers and their forwarding functions can be remotely controlled over a network (col. 4, lines 28-32, 38-44; col. 5, lines 25-38; col. 7, lines 10-20, describing a network monitoring system for controlling routers by controlling the "forwarding operation" of the routers). Thus, given the teaching of Raz, a person having ordinary skill in the art would have readily recognized the desirability and advantages of controlling network routers and their forwarding data, as taught by Raz, using the XML-based management functions taught by Humpleman, to allow devices outside the home network to be easily controlled by the network manager, thereby eliminating the need to physically travel to the routers to control them.

In considering claims 2 and 18, Humpleman further discloses the means for executing including means for interfacing with hardware and software on the network device (col. 15, lines 11-15, "in each device 14, applications at the top of the communication stack send and receive communication messages over the network, and communicate with software layers in the device stack that locally control the device hardware or service software for the device").

In considering claims 3 and 19, Humpleman further discloses that the markup language is XML ("XML").

In considering claims 4 and 20, Humpleman further discloses that the corresponding document definition is an XML DTD ("DTD").

In considering claims 9 and 25, Humpleman further discloses that the means for parsing include means for parsing from the document an identifier ("method name") corresponding to the service (col. 18, lines 13-17).

In considering claims 10 and 26, Humpleman further discloses that the means for parsing include means for parsing from the document runtime parameters corresponding to the service (col. 12, lines 63-65, "the look-up 56 table provides run-time translation of XML object method calls from Service B into device native language calls for Service A").

In considering claims 11 and 27, Humpleman further discloses means for instantiating an object corresponding to the service in accordance with the parsed identifier (col. 18, lines 19-21, "launch the native function implementations of device B").

In considering claims 12 and 28, Humpleman further discloses means for instantiating an object corresponding to the service in accordance with the parsed identifier and the parsed runtime parameters (col. 18, lines 19-21, "launch the native function implementations of device B," col. 12, lines 60-65, "run-time translation of XML object method calls").

In considering claims 13 and 29, Humpleman further discloses that the network can be one of a multitude of devices, including a router (col. 1, lines 36-38, 42-45).

In considering claims 14 and 30, Humpleman further discloses that the network device comprises a packet forwarding architecture (i.e. a router).

In considering claims 15 and 31, Humpleman further discloses means for preparing a response corresponding to the executed service (col. 18, lines 21-24, "responses").

In considering claim 16 and 32, Humpleman further discloses means for forwarding the response to a remote requestor of the service (col. 18, lines 23-24, "responses [are] sent to the controller device A").

Regarding claim 33, Examiner has interpreted the term "forwarding related" as meaning simply "forwarding."

In considering claim 33, Humpleman discloses a network device ("device B") for locally performing a service in accordance with a received document written in a document markup language ("interface document INTERFACE.XML"), comprising:

Means for receiving at the network device a document written in accordance with a markup language ("interface document INTERFACE.XML") and a corresponding document definition ("document type definition INTERFACE.DTD") (col. 15, lines 44-52; col. 18, lines 8-11, "the XMLRPC command messages are sent to the controlled device B over the network. Upon receiving said XMLRPC command messages...");

A parser that is adapted to parse the received document in accordance with the corresponding document definition to obtain an identifier of the service (col. 18, lines 11-16, "the controlled application 84 of device B uses the XML parser 74 of device B to parse and interpret the received XML command messages," wherein the identifier is the "method name"); and

A service launcher that is adapted to launch the service corresponding to the identifier parsed from the received document (col. 18, lines 17-21, "device B then uses the XML... to access and launch the native function implementation of device B...").

However, Humpleman does not disclose that the service is a data forwarding service or that the device is a data forwarding device or that the document describes a data forwarding service, such that the document causes data forwarding services to be performed. That is because Humpleman does not focus on controlling data forwarding devices (i.e. routers, switches, etc.). Instead the main embodiment of Humpleman's invention describes a way of using XML documents to control other types of home-network devices. Nonetheless, Humpleman does contemplate that "devices" may include routers and other non-home-network devices (see col. 1, lines 36-38, 42-46, "the [network] devices include computers, peripheral devices, routers, storage devices...," "the term 'device' typically includes logical devices or other units having functionality and an ability to exchange data, and *can include not only all home devices but also general purpose computers*"; "method and system to provide the ability to control a plurality of diverse devices having different capabilities to communicate with each other in order to accomplish tasks or provide a service." Emphasis added.).

Furthermore, in a similar art, Raz discloses that routers and their forwarding functions can be remotely controlled over a network (col. 4, lines 28-32, 38-44; col. 5, lines 25-38; col. 7, lines 10-20, describing a network monitoring system for controlling routers by controlling the "forwarding operation" of the routers). Thus, given the teaching of Raz, a person having ordinary skill in the art would have readily recognized the desirability and advantages of controlling network routers and their forwarding data, as taught by Raz, using the XML-based management functions taught by Humpleman,

to allow devices outside the home network to be easily controlled by the network manager, thereby eliminating the need to physically travel to the routers to control them.

In considering claim 34, Humpleman further discloses a network data transfer service that is adapted to communicate with remote devices for receiving the document (col. 16, lines 13-16, "a Home Network Device Web server 86 in each of the devices A and B manages communication between the devices over the network").

In considering claim 35, Humpleman further discloses that the network data transfer service comprises an HTTP server ("Web server 86").

In considering claim 36, Humpleman further discloses that the markup language is XML ("XML").

In considering claim 37, Humpleman further discloses that the corresponding document definition is an XML DTD ("DTD").

In considering claim 39, Humpleman further discloses a services storage coupled to the service launcher that stores a plurality of services, the service launcher being further adapted to select the service from the stored plurality of services in accordance with the parsed identifier (col. 18, lines 9-21, wherein the parsing obtains method call

information and a method name, which are used to select from the plurality of services – i.e. handlers – to perform the service).

In considering claim 41, Humpleman and Raz further discloses that the device further comprises a packet forwarding switch fabric (Humpleman, col. 1, lines 36-37; Raz, col. 4, lines 28-44, "router").

In considering claim 42, as discussed above, Raz further discloses that the launched service causes changes in how packets are forwarded through the switch fabric (col. 7, lines 19-20, "control the forwarding operation").

In considering claim 43, Raz further discloses that the management system can also monitor performance of packet forwarding in the routers (col. 5, lines 30-33, "performance data such as... packets forwarded").

In considering claim 44, Raz further discloses that a system monitoring routers in a network accesses an MIB on the routers (col. 5, lines 35-38, "standard SNMP agents exist in most conventional routers and provide a read/write interface to a standard MIB").

In considering claim 45, Humpleman further discloses device APIs for interoperating with the device hardware and software for executing launched services (col. 14, lines 20-25, "API interface").

In considering claim 47, Humpleman further discloses device APIs for interoperating with the device hardware and software for executing launched services (col. 14, lines 20-25, "API interface").

Regarding claim 48, Examiner has interpreted the term "forwarding related" as meaning simply "forwarding."

In considering claim 48, Humpleman discloses a method for causing a network device to locally perform a service, comprising the steps of:

Identifying the service to be performed at a remote client computer, and preparing at the remote client computer a document written in a markup language in accordance with a document definition, the document including an identifier of the service (col. 18, lines 3-10, wherein "device A" generates the XML document to send a command message to device B, the document inherently including an identifier of the service – see Example 1, line 45, wherein "DVCR1.record" identifies the service);

Transmitting the document to the network device (col. 18, lines 8-9);

Identifying at the network device the document definition corresponding to the transmitted document (col. 18, lines 10-16; col. 15, lines 44-52, wherein the DTD file corresponding to the document is also received and identified at the network device);

Parsing by the network device the transmitted document in accordance with the corresponding document definition (col. 18, lines 10-16, "parse and interpret the received XML command messages"); and

Executing the service on the network device in accordance with the parsed document (col. 18, lines 12-17, "perform requested services").

However, Humpleman does not disclose that the service is a data forwarding service or that the device is a data forwarding device or that the document describes a data forwarding service, such that the document causes data forwarding services to be performed. That is because Humpleman does not focus on controlling data forwarding devices (i.e. routers, switches, etc.). Instead the main embodiment of Humpleman's invention describes a way of using XML documents to control other types of home-network devices. Nonetheless, Humpleman does contemplate that "devices" may include routers and other non-home-network devices (see col. 1, lines 36-38, 42-46, "the [network] devices include computers, peripheral devices, routers, storage devices...," "the term 'device' typically includes logical devices or other units having functionality and an ability to exchange data, and *can include not only all home devices but also general purpose computers*"; "method and system to provide the ability to control a plurality of diverse devices having different capabilities to communicate with each other in order to accomplish tasks or provide a service." Emphasis added.).

Furthermore, in a similar art, Raz discloses that routers and their forwarding functions can be remotely controlled over a network (col. 4, lines 28-32, 38-44; col. 5, lines 25-38; col. 7, lines 10-20, describing a network monitoring system for controlling

routers by controlling the "forwarding operation" of the routers). Thus, given the teaching of Raz, a person having ordinary skill in the art would have readily recognized the desirability and advantages of controlling network routers and their forwarding data, as taught by Raz, using the XML-based management functions taught by Humpleman, to allow devices outside the home network to be easily controlled by the network manager, thereby eliminating the need to physically travel to the routers to control them.

In considering claim 49, Humpleman further discloses that the markup language is XML ("XML").

In considering claim 50, Humpleman further discloses that the corresponding document definition is an XML DTD ("DTD").

3. Claims 5-8, 21-24, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humpleman, in view of Raz, and further in view of Gessner (U.S. Patent Publication No. 2002/0032709, filed on Sep. 29, 1998).

In considering claims 5, 7, 21, and 23, these claims all recite retrieving the corresponding document definition from a plurality of document definitions in accordance with an identifier in the received document. This feature is not taught by Humpleman or Raz. Humpleman teaches a document definition corresponding to a document, but remains silent regarding how the document definition is selected or retrieved. Nonetheless, selection at run time of document definitions that correspond to a selected markup language document is well known, as evidenced by Gessner.

Gessner discloses a system that uses DTDs and their corresponding documents, wherein the DTDs "may be locally stored [or] may be stored remotely on server systems and delivered at and during run time of a browser, etc. to facilitate dynamic replacement of particular grammars and to further facilitate the rendering of content based thereon." See ¶ [0041]. Thus, a person having ordinary skill in the art would have readily recognized the desirability and advantages of selecting the corresponding DTDs in the system taught by Humpleman and Raz according to the id contained in the documents, to facilitate dynamic creation of the XML file, thereby further enhancing the dynamic nature of the control and command system taught by Humpleman and Raz (see Humpleman, col. 2, lines 39-41). Therefore, it would have been obvious to use the dynamic DTD selection taught by Gessner in the dynamic control and command system taught by Humpleman and Raz.

In considering claims 6, 8, 22, and 24, Gessner further discloses that the document definitions are provided locally ([0041], "DTD components may be locally stored").

In considering claim 38, claim 38 contains the same limitations as claims 5, 7, 21, and 23, but adds the feature that the device further comprises a document definition storage that stores the plurality of definitions from which selection is made. This storage feature is further taught by Gessner in ¶ [0041], which recites "DTD components may be locally stored."

4. Claims 40 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humpleman and Raz, in view of Applicant's admission of the prior art, or alternatively in view of Jaeger et al. (Dynamic Classification in Silicon-based Forwarding Engine Environments, December 1999, hereinafter "Jaeger").

In considering claim 40, Humpleman teaches that the service launcher is adapted to launch the service using a runtime environment (col. 18, lines 10-21 describe that the service launcher generates native function implementations from the XML document, and col. 12, lines 55-65 describe that such translation occurs at run-time). However, neither Humpleman nor Raz disclose the use of the "Oplet Runtime Environment." Nonetheless, the Oplet Runtime Environment is a well-known environment in the router environment, as evidenced by both applicant's admission of prior art (see specification, p. 9, lines 8-16), and by Jaeger (Abstract). A person having ordinary skill in the art would have readily recognized the desirability and advantages of using the ORE to manage the routers in the system taught by Humpleman and Raz, because ORE "supports the creation of services in Java that are extensible, portable, and easily distributed over the network," (see Jaeger, Conclusion, p. 109). Thus, it would have been obvious to use the Oplet Runtime Environment as the runtime environment in the system taught by Humpleman and Raz.

In considering claim 46, Humpleman further discloses device APIs for interoperating with the device hardware and software for executing launched services (col. 14, lines 20-25, "API interface").

Response to Arguments

5. In Applicant's response filed on March 5, 2004, Applicant primarily argued that none of Humpleman, Gessner, the ORE Reference, Jaeger, or Raz, either taken alone, or in combination, disclose or suggest all of the features of the claimed invention, as claimed in claims 1, 17, 33, and 48 (see Applicant's response, page 11, lines 3-14; page 12, line 16 – page 13, line 6). Applicant has emphasized the fact that in contrast to the home-network control system taught by Humpleman, the document and control information of the claimed invention includes *forwarding* information, and in response, the system controls *forwarding* services.

Examiner agrees that the references alone do not disclose the entirely claimed system – i.e. a system that controls network devices by receiving, parsing, and executing in the manner claimed, wherein the information controlled is *forwarding information*. However, Examiner respectfully disagrees that the system taught by the combined references does not teach the claimed invention. Notably, as discussed in the claim rejections above, Humpleman teaches the claimed receiving, parsing, and executing steps for a devices on a network, but does not disclose using the same method to control forwarding devices that run forwarding services on a network. Nonetheless, controlling forwarding services on forwarding devices from a remote

location on a network is well known, as shown by Raz (see col. 4, lines 28-32, 38-44; col. 5, lines 25-38; col. 7, lines 10-20). Furthermore, it would have been obvious to use the same control method used by Humpleman to control routers and other forwarding devices on a network to eliminate the need to physically travel to and access the routers to control them. Therefore, the combination of the Raz and Humpleman teaches claims 1, 17, 33, and 38.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is (703) 306-3041. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (703) 305-4792. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

For all After Final papers: (703) 746-7238.

For all other correspondences: (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

GLENTON B. BURGESS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

BE
May 11, 2004